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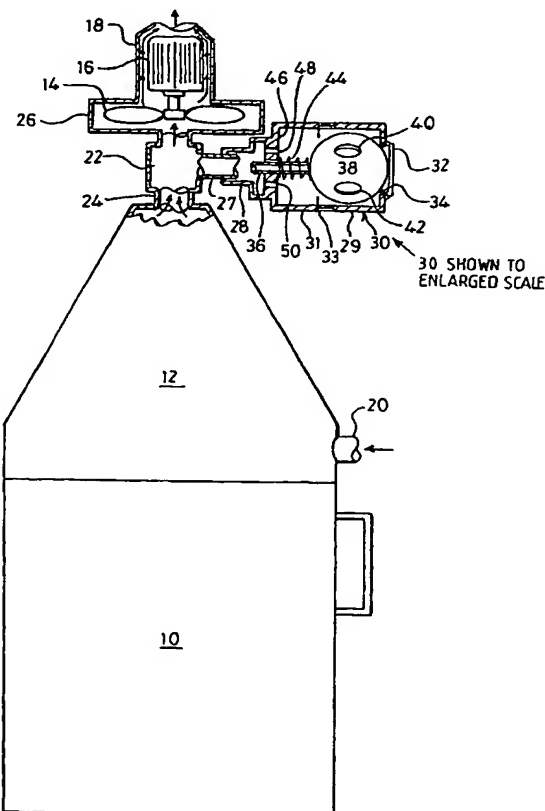
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(54) Title: IMPROVEMENTS IN AND RELATING TO PARTICLE SEPARATION APPARATUS



(57) **Abstract:** Particle separation apparatus comprises a cyclone particle separating means, a particle collecting chamber and a fan driven by an electric motor for drawing particle laden air into and through the apparatus. A valve is provided, upstream of the suction fan driving motor and downstream of the cyclone particle separating means, which includes a valve closure and a valve seat against which the closure is normally resiliently urged to prevent air flowing through the valve. The valve is mounted so as to communicate with a passage between the cyclone particle separating means and the fan so that air pressure within the passage acts on one side of the closure while the other side of the closure is exposed to ambient air pressure. In use if the air pressure in the passage leading from the cyclone particle separating means to the fan falls below ambient by more than a predetermined amount, the pressure differential acting on the closure creates a force sufficient to overcome the resilient force acting thereon and the closure will become displaced from the seating and allow air to enter the passage to maintain an air flow to and around the fan motor. The closure is urged into the closed position by a resiliently deformable member acting on the one side of the closure, and is located within a hollow housing. The resiliently deformable member is a spiral spring which acts between the rear of the closure and one end of the housing and an opening is provided in the opposite end of the housing defining the valve seating, and the area of the opening is less than the area of the closure.